PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Benjamin et al.	)	Examiner: Laura E. Martin
	)	Art Unit: 2853
Serial No.: 10/827,139	)	
Filed: 4/19/04	)	
For: **FLUID EJECTION DEVICE**	)	
Date of Final Office Action: August 7, 2008	)	Attorney Docket No.: 200209168-1
Notice of Appeal Filed: October 10, 2008	)	

December 10, 2008

APPEAL BRIEF

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This Appeal Brief is timely provided to support the Notice of Appeal filed October 10, 2008.

1. Statement of Real Party in Interest:

The real party in interest is Hewlett-Packard Development Company, LP, a limited partnership established under the laws of the State of Texas and having a principal place of business at 20555 S.H. 249 Houston, TX 77070, U.S.A. (hereinafter "HPDC"). HPDC is a Texas limited partnership and is a wholly-owned affiliate of Hewlett-Packard Company, a Delaware Corporation, headquartered in Palo Alto, CA. The general or managing partner of HPDC is HPQ Holdings, LLC.

2. Statement of Related Cases

There are no other prior and/or pending appeals, interferences, or judicial proceedings that are related to, directly affect, or that will be directly affected by, or have a bearing on the Board's decision in the appeal.

3. Status of pending claims

Pending : 1-36 and 38-47

Rejected : 1-36 and 38-47

Allowed : none

Cancelled : 37 and 48-54

Withdrawn : none

Objected to: none

4. Status of amendments

No amendments were filed subsequent to the Final Office Action.

5. Summary of Claimed Subject Matter

Independent Claim 1

Claim 1 recites a fluid ejection device **{Page 110, lines 22-23; Fig. 22, Printhead Die 1700}**. The device comprises a first fire line adapted to conduct a first energy signal comprising energy pulses **{Page 116, lines 7-8; Fig. 22, Fire Line 214a, Energy Signal FIRE 1}**. The device also comprises a second fire line adapted to conduct a second energy signal comprising energy pulses **{Page 116, lines 23-24; Fig. 22, Fire Line 214d, Energy Signal FIRE 2}**. The device also comprises a first address generator configured to provide first address signals **{Page 111, lines 10-12; Fig. 22, Address Generator 1800a, Address Signals ~A1 - ~A7}**. The device also comprises a second address generator configured to provide second address signals **{Page 111, lines 12-13; Fig. 22, Address Generator 1800b, Address Signals ~B1 - ~B7}**. The device also comprises first drop generators electrically coupled to the first fire line and configured to respond to the first energy signal to eject fluid based on the first address signals **{Page 69, lines 8-11; Fig. 13, Address Signals ~A1 - ~A7, Fire Group 1004a, Fig. 22, Top Half of Ink Feed Slot 1704, Fire Group 1702a}**. The device also comprises second drop generators electrically coupled to the second fire line and configured to respond to the second energy signal to eject fluid based on the second address signals **{Page 70, lines 2-5; Fig. 13, Address Signals ~B1 - ~ B7, Fire Group**

1004d, Fig. 22, Bottom Half of Ink Feed Slot 1704, Fire Group 1702d}.

Independent Claim 21

Claim 21 recites a fluid ejection device **{Page 110, lines 22-23; Fig. 22, Printhead Die 1700}**. The device comprises a first fire line adapted to conduct a first energy signal comprising energy pulses **{Page 116, lines 7-8; Fig. 22, Fire Line 214a, Energy Signal FIRE 1}**. The device also comprises a second fire line adapted to conduct a second energy signal comprising energy pulses **{Page 116, lines 23-24; Fig. 22, Fire Line 214d, Energy Signal FIRE 2}**. The device also comprises means for generating first address signals **{Page 111, lines 10-12; Fig. 22, Address Generator 1800a, Address Signals ~A1 - ~A7}**. The device also comprises means for generating second address signals **{Page 111, lines 12-13; Fig. 22, Address Generator 1800b, Address Signals ~B1 - ~B7}**. The device also comprises means for responding to the first energy signal to eject fluid based on the first address signals **{Page 69, lines 8-11; Fig. 13, Address Signals ~A1 - ~A7, Fire Group 1004a, Fig. 22, Top Half of Ink Feed Slot 1704, Fire Group 1702a}**. The device also comprises means for responding to the second energy signal to eject fluid based on the second address signals **{Page 70, lines 2-5; Fig. 13, Address Signals ~B1 - ~ B7, Fire Group 1004d, Fig. 22, Bottom Half of Ink Feed Slot 1704, Fire Group 1702d}**.

Independent Claim 26

Claim 26 recites a method of operating a fluid ejection device **{Page 110, lines 22-23; Fig. 22, Printhead Die 1700}**. The method comprises generating first address signals in the fluid ejection device **{Page 111, lines 10-12; Fig. 22, Address Generator 1800a, Address Signals ~A1 - ~A7}**. The method also comprises generating second address signals in the fluid ejection device **{Page 111, lines 12-13; Fig. 22, Address Generator 1800b, Address Signals ~B1 - ~B7}**. The method also comprises receiving a first energy signal comprising energy pulses on a first fire line **{Page 116, lines 7-8; Fig. 22, Fire Line 214a, Energy Signal FIRE 1}**. The method also comprises receiving a second energy signal comprising energy pulses on a second fire line **{Page 116, lines 23-24; Fig. 22, Fire Line 214d, Energy Signal FIRE 2}**. The method also comprises responding to the first energy signal to eject fluid based on the first address signals **{Page 69, lines 8-11; Fig. 13, Address Signals ~A1 - ~A7, Fire Group 1004a, Fig. 22, Top Half of Ink Feed Slot 1704, Fire Group 1702a}**. The method also comprises responding to the second energy signal to eject fluid based on the second address signals **{Page 70, lines 2-5; Fig. 13, Address Signals ~B1 - ~ B7, Fire Group 1004d, Fig. 22, Bottom Half of Ink Feed Slot 1704, Fire Group 1702d}**.

Independent Claim 35

Claim 35 recites a fluid ejection device **{Page 110, lines 22-23; Fig. 22, Printhead Die 1700}**. The device comprises a first fire line adapted to conduct a first energy signal comprising energy pulses **{Page 116, lines 7-8; Fig. 22, Fire Line 214a, Energy Signal FIRE 1}**. The device also comprises a first source of address signals configured to provide first address signals **{Page 111, lines 10-12; Fig. 22, Address Generator 1800a, Address Signals ~A1 - ~A7}**. The device also comprises first resistors electrically coupled to the first fire line and configured to respond to the first pulses to cause the fluid to be ejected fluid based on the first address signals. **{Page 69, lines 8-11; Fig. 13, Address Signals ~A1 - ~A7, Fire Group 1004a, Fig. 22, Top Half of Ink Feed Slot 1704, Fire Group 1702a}**. The first source of address signals and the first resistors are positioned on a first portion of the fluid ejection device **{Fig.22 Fire Line 214a, Address Generator 1800a, and Top Half of Feed Slot 1704 are all on the top half of Printhead Die 1700}**.

Independent Claim 39

Claim 39 recites a fluid ejection device **{Page 110, lines 22-23; Fig. 22, Printhead Die 1700}**. The device also comprises a first source of first address signals **{Page 111, lines 10-12; Fig. 22, Address Generator 1800a, Address Signals ~A1 - ~A7}**. The device also comprises a second source of second address signals **{Page 111, lines 12-13; Fig. 22, Address Generator 1800b, Address Signals**

~B1 - ~B7}. The device also comprises first address lines configured to conduct the first address signals **{Page 110, lines 27-28; Figure 22, Address Lines 1806a-1806g}**. The device also comprises second address lines configured to conduct the second address signals **{Page 110, lines 28-29; Figure 22, Address Lines 1808a-1808g}**. The device also comprises first resistors electrically coupled to the first address lines, the first resistors configured to cause fluid to be ejected based on the first address signals **{Page 69, lines 8-11; Fig. 13, Address Signals ~A1 - ~A7, Address Lines 1006, Fire Group 1004a, Fig. 22, Top Half of Ink Feed Slot 1704, Address Lines 1806a-1806g, Fire Group 1702a}**. The device also comprises second resistors electrically coupled to the second address lines, the second resistors configured to cause fluid to be ejected based on the second address signals **{Page 70, lines 2-5; Fig. 13, Address Signals ~B1 - ~ B7, Address Lines 1008, Fire Group 1004d, Fig. 22, Bottom Half of Ink Feed Slot 1704, Address Lines 1806a-1806g, Fire Group 1702d}**. The first address generator and the first resistors are located on a first portion of the fluid ejection device. **{Fig.22, Address Generator 1800a and Top Half of Feed Slot 1704 are all on the top half of Printhead Die 1700}**. The second address generator and the second resistors are located on a second portion of the fluid ejection device. **{Fig.22, Address Generator 1800b and Bottom Half of Feed Slot 1704 are all on the bottom half of Printhead Die 1700}**.

Independent Claim 43

Claim 43 recites a method of operating a fluid ejection device **{Page 110, lines 22-23; Fig. 22, Printhead Die 1700}**. The fluid ejection device comprises a first group of resistors that each cause fluid to be ejected from a corresponding opening **{Page 110, line 25; Fig. 22, Fire Groups 1702a-c}**. The fluid ejection device also comprises a second group of resistors that each cause fluid to be ejected from a corresponding opening **{Page 110, line 25; Fig. 22, Fire Groups 1702d-f}**. The first group of resistors is disposed on a first portion of the fluid ejection device **{Fig.22, Fire Groups 1702a-c are on the top half of Printhead Die 1700}**. The second group of resistors is disposed on a second portion of the fluid ejection device **{Fig.22, Fire Groups 1702d-f are on the bottom half of Printhead Die 1700}**. The method comprises generating address signals at a first source **{Page 111, lines 10-12; Fig. 22, Address Generator 1800a, Address Signals ~A1 - ~A7}**. The method also comprises generating address signals at a second source different than the first source **{Page 111, lines 12-13; Fig. 22, Address Generator 1800b, Address Signals ~B1 - ~B7}**. The method also comprises providing the first address signals to the first group of resistors **{Page 110, lines 27-28; Figure 22, Address Lines 1806a-1806g}**. The method also comprises providing the second address signals to the second group of resistors **{Page 110, lines 28-29; Figure 22, Address Lines 1808a-1808g}**.

6. Grounds of rejection to be reviewed

I. Whether claims 1, 3-9, 21, 23-27, 29-32, 35, 36, 38-43 and 47 are anticipated under 35 U.S.C. §102(b) over Schloeman et al. (US 6,659,581 B2).

II. Whether claims 33 and 34 are unpatentable under 35 U.S.C. 103(a) as being obvious over Schloeman et al.

III. Whether claims 2, 22, and 28 are unpatentable under 35 U.S.C. 103(a) as being obvious over Schloeman et al, in view of Axtell et al. (US 2002/0060722 A1).

IV. Whether claims 10-20 and 44-46 are unpatentable under 35 U.S.C. 103(a) as being obvious over Schloeman et al. in view of Cleland et al. (US 6,491,377 B1).

7. Argument

I. Whether claims 1, 3-9, 21, 23-27, 29-32, 35, 36, 38-43 and 47 are unpatentable under 35 U.S.C. §102(b) as being anticipated by Schloeman et al. (US 6,659,581 B2).

For a 35 U.S.C. §102 reference to anticipate a claim, the reference must teach every element of the claim. Section 2131 of the MPEP recites:

> A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

Independent Claim 1

Claim 1 was rejected under 35 U.S.C. §102 as being anticipated by Schloeman. Appellant respectfully submits that Schloeman does not anticipate claim 1 for several reasons. First, the pulse width registers 110a-110n of Schloeman do not teach the address

generators of claim 1. Second, the fire pulse generators of Schloeman do not teach the address generators of claim 1. Third, the fire_pulse_1-n signals of Schoelman do not teach the address signals of claim 1. Fourth, the fire pulse generators of Schloeman cannot teach both the drop generators and the address generators of claim 1 as proposed by the Office Action. Fifth, the claim as a whole in the claimed arrangement is not found in Schloeman.

In sum, the rejection is based on the interpretation that the pulse width registers 110a and first pulse generator 118a are address generators (final Office Action, page 17, 4th paragraph). Figure 4 of Schloeman clearly shows that addresses are provided on an address bus 114. The address bus 114 is connected to each of the pulse width registers 110a-110n (col. 8, lines 15-17). Thus addresses are generated before they reach the pulse width registers. The interpretation is incorrect and the rejection is improper. Reasons why the examiner is believed to have erred as to each rejection is provided as follows:

A. The Pulse Width Registers of Schloeman Do Not Teach The Address Generators of Claim 1

Claim 1, lines 6-8 recite "a first address generator configured to provide first address signals; a second address generator configured to provide second address signals." The Office Action states, on page 2 and page 17, that the first and second address generators of claim 1 are taught by elements 110a-110n and 118a-118n of Schloeman (fig. 4).

Elements 110a-110n are pulse width registers. Each register stores a pulse width value that controls the width of a fire pulse. The pulse width registers do not generate addresses. The pulse width value is not an address. Schloeman describes the registers as follows:

> Pulse width registers 110a-110n store pulse width values which are employed to determine the widths of the fire pulses provided from fire pulse generator circuitry 100. Pulse width registers 110a-110n respectively provide pulse counts 1, 2, . . . , N on busses 116a, 116b, . . . , 116n, which represent the corresponding pulse width values stored in pulse width registers 110a-110n. Each pulse width register 110a-110n stores an appropriate number of bits in the pulse width value

to properly encode the desired width of the corresponding fire pulse from fire pulse generator circuitry 100.

(Schloeman, col. 8, lines 18-28)

Thus, the output from a pulse width register 110a is a pulse width value. The output is provided as "pulse count 1" on bus 116a (see fig. 4). The pulse count determines "the widths of the fire pulses" (col. 8, lines 18-20). Therefore the pulse count is not an address (see fig. 4). The pulse count is a value to control the desired width of a fire pulse. One of ordinary skill in the art understands that a pulse counts that determines the width of a fire pulse is not an address. Neither the pulse count register nor the pulse count value teaches the address generators of claim 1.

It is clear from Schloeman figure 4 that addresses are provided on an address bus 114. The address bus 114 is inputted to each of the pulse width registers 110a-110n (col. 8, lines 15-17). Thus addresses are generated before they reach the pulse width registers. Schloeman clearly discloses that the pulse width registers output a pulse count value, not an address (col. 8, lines 18-28). Schloeman thus fails to

anticipate the claim for at least this reason and fails to establish a prima facie anticipation rejection.

B. The Fire Pulse Generators of Schloeman Do Not Teach The Address Generators of Claim 1

The fire pulse generators generate fire signals. The fire pulse generators do not generate addresses. Schloeman describes the fire pulse generator as follows:

> Fire pulse generator circuitry 100 includes N fire pulse generators 118a, 118b, ... , 118n corresponding to pulse width registers 110a-110n respectively. Fire pulse generators 118a-118n all receive the begin_pulse signal on line 108 from start_fire detection circuit 102 and the clock signal on line 106. In addition, fire pulse generators 118a-118n receive the pulse counts 1-N on busses 116a-116n respectively. Fire pulse generators 118a-118n respectively provide the fire signals fire_pulse_1, fire_pulse_2, ... , fire_pulse_N respectively on lines 120a, 120b, ... , 120n.
>
> (Schloeman, col. 8, lines 30-39)

Thus, the output from a fire pulse generator 118a is a fire signal. The fire signal is used to control the ejection of ink drops from the nozzles of a print head from a "start signal" to a "stop signal" (Schloeman, col. 9, lines 18-23). Because the fire pulse generator generates a fire signal for a time period (from start to stop), it is not an address. Therefore, the fire pulse generators are not address generators.

The pulse width registers 110a-110n and the fire pulse generators 118a-118n are not address generators. They do not alone or in combination teach the first and second address generators recited in claim 1.

C. The Fire_Pulse_1-n Signals of Schoelman Do Not Teach The Address Signals of Claim 1

The Office Action states on page 2 that the fire_pulse_1-n signals teach the address signals recited in claim 1. As seen in figure 4 of Schoelman, "Address Bus 114" is input to the pulse width registers. "Pulse width registers 110a-110n receive data on data_bus 112 and

addresses from address_bus 114." (col. 8, lines 15-17). Therefore, the pulse width registers do not generate addresses and do not provide addresses. Instead, they receive addresses and then generate fire_pulse signals, which are not addresses. Accordingly, the fire_pulse_1-n signals do not teach the addresses recited in claim 1 and Schloeman fails to teach the claim for this additional reason.

D. The Fire Pulse Generators of Schloeman Cannot Teach Both The Drop Generators and The Address Generators of Claim 1

The Office Action asserts on page 2 that fire pulse generators teach the drop generators recited in claim 1 by citing Schloeman, column 2, lines 32-41 and figure 4. This citation refers to the same fire pulse generators discussed above that the Office Action attempted to use to teach the address generators. In claim 1 the drop generator responds to an energy signal to eject fluid and the address generators provide address signals. These claim elements are different elements and perform different operations. Therefore, the same component (fire

pulse generator) can not and does not teach both the drop generators and the address generators of claim 1.

Neither the pulse count register nor the pulse count value are address generators as recited in claim 1. The fire_pulse_1-n signals are not the addresses recited in claim 1. As such, Schloeman fails to anticipate each and every element of claim 1 and fails to establish a prima facie anticipation rejection. The rejection is improper and should be reversed.

Accordingly, dependent claims 2-20 are also not taught or suggested by the reference. The rejection is improper and should be reversed.

Independent Claim 21

The Office Action cites Schloeman figure 4 and the combination of elements 110a/118a and 110n/118n as teaching the recited means for generating first address signals and means for generating second address signals (final Office Action, page 5, lines 1-5). Based on the explanation of Schloeman under claim 1, elements 110a-110n and 118a-118n do not teach address generators. Instead, these

components generate the fire_pulse_1-n signals. As explained above, the fire pulse generator 118a generates a fire signal from a start time to a stop time (Schloeman, col. 9, lines 18-23) therefore it is not an address.

Each and every element of claim 21 is not found in Schloeman. Furthermore, the claim as a whole, recited in the claimed arrangement and with the claimed connections, is not found. Claim 21 is not anticipated. The rejection should be reversed.

Independent Claim 26 and 43

Similarly, the Office Action cites elements 110a/110n and 118a/118n as well as the fire_pulse_1-n signals as teaching the claimed elements relating to generating first and second address signals (final Office Action, page 6, lines 1-5). Elements 110-110n and 118a-118n do not teach generating addresses and the fire_pulse_1-n signals are not addresses. Furthermore since elements 110-110n receive addresses as input on address bus 114, they do not generate

addresses (see fig. 4). Thus, Schloeman does not anticipate either claim. The rejections should be reversed.

Claim 43 recites: "generating first address signals at a first source" and "generating second address signals at a second source different than the first source". In view of the discussion of Schloeman, Schloeman only discloses one address bus 114 that carries addresses (fig. 4). It fails to disclose what component generates the addresses. Therefore, Schloeman fails to teach or suggest different sources that generate first and second address signals. Claim 43 is not anticipated and the rejection should be reversed.

Independent Claim 35 and 39

Claims 35 and 39 recite a first source of address signals and a second source of address signals. The pulse width registers 110a-110n, fire pulse generators 118a-118n and the fire_pulse_1-n signals were cited to teach the claimed elements (final Office Action, page 7, 3rd paragraph). As shown above, they do not. A prima facie rejection has not been established. The rejections should be reversed.

Claim 39 further recites "first resistors electrically coupled to the first address lines" and "second resistors electrically coupled to the second address lines". Schloeman figure 4 was cited as teaching these elements (final Office Action, page 8, 3rd paragraph). In figure 4, the fire pulse lines 120 control ejection of ink drops from nozzles of the printhead 40 (col. 9, lines 20-23). Thus it can be assumed that resistors for ejecting drops are somewhere connected to the fire lines 120a-n. As previously explained, the fire lines 120 are not address lines. Schloeman explicitly shows that the address bus 114, which carries addresses, is connected to each of the pulse width registers 110a-110n. The address bus then ends at the pulse width registers. The address bus is not coupled to resistors. Therefore, figure 4 fails to teach or suggest the claimed elements or the claimed arrangement of "first resistors electrically coupled to the first address lines" or "second resistors electrically coupled to the second address lines". A prima facie rejection has not been established. The rejection is improper and should be reversed.

II. Whether claims 33 and 34 are unpatentable under 35 U.S.C. 103(a) as being obvious over Schloeman et al.

Claims 33 and 34 depend from independent claim 26. It has been shown that Schloeman fails to support the rejection for which it is relied upon as applied to the independent claims. Thus Schloeman fails to establish a prima facie obviousness rejection for the dependent claims. The §103 rejection is improper and should be reversed.

III. Whether claims 2, 22, and 28 are unpatentable under 35 U.S.C. 103(a) as being obvious over Schloeman et al, in view of Axtell et al. (US 2002/0060722 A1).

Claim 2 depends from independent claim 1. Claim 22 depends from independent claim 21. Claim 28 depends from independent claim 26. It has been shown that Schloeman fails to support the rejection for which it is relied upon as applied to the independent claims. Thus Schloeman fails to establish a prima facie obviousness rejection for the dependent claims. Since Axtell was cited for other purposes, Axtell

fails to cure the deficiencies of Schloeman as explained above. The §103 rejection is improper and should be reversed.

IV. Whether claims 10-20 and 44-46 are unpatentable under 35 U.S.C. 103(a) as being obvious over Schloeman et al. in view of Cleland et al. (US 6,491,377 B1).

Claims 10-20 depend from independent claim 1. Claims 44-46 depend from independent claim 43. It has been shown that Schloeman fails to support the rejection for which it is relied upon as applied to the independent claims. Thus Schloeman fails to establish a prima facie obviousness rejection for the dependent claims. Since Cleland was cited for other purposes, Cleland fails to cure the deficiencies of Schloeman as explained above. The §103 rejection is improper and should be reversed.

Conclusion

For the reasons set forth above, a prima facie anticipation or obviousness rejection has not been established for any claim. All rejections have been shown to be improper. Appellant respectfully believes that all pending claims 1-36 and 38-47 patentably and unobviously distinguish over the references of record and that the rejections should be reversed. Appellant respectfully requests that the Board of Appeals overturn the Examiner's rejections and allow all pending claims. An early allowance of all claims is earnestly solicited.

Respectfully submitted,

DEC. 10, 2008

Date

Peter Kraguljac (Reg. No. 38,520)

Kraguljac & Kalnay, LLC
Summit One, Suite 510
4700 Rockside Road.
Independence, OH 44131
(216) 503-5500

8. Claims Appendix

1. A fluid ejection device comprising:

a first fire line adapted to conduct a first energy signal comprising energy pulses;

a second fire line adapted to conduct a second energy signal comprising energy pulses;

a first address generator configured to provide first address signals;

a second address generator configured to provide second address signals;

first drop generators electrically coupled to the first fire line and configured to respond to the first energy signal to eject fluid based on the first address signals; and

second drop generators electrically coupled to the second fire line and configured to respond to the second energy signal to eject fluid based on the second address signals.

2. The fluid ejection device of claim 1, wherein the first address signals are valid while the second address signals are invalid and the second address signals are valid while the first address signals are invalid.

3. The fluid ejection device of claim 1, wherein the first address generator is disposed on a first half portion of the fluid ejection device and the second address generator is disposed on a second half portion of the fluid ejection device, and wherein the first drop generators are disposed on the first half portion and the second drop generators are disposed on the second half portion.

4. The fluid ejection device of claim 1, wherein the first address generator is disposed at one end of the fluid ejection device and the second address generator is disposed at the other end of the fluid ejection device.

5. The fluid ejection device of claim 1, wherein the first address generator is disposed in one corner of the fluid ejection device and the

second address generator is disposed in another corner of the fluid ejection device.

6. The fluid ejection device of claim 1, comprising:

a third fire line adapted to conduct a third energy signal comprising energy pulses;

a fourth fire line adapted to conduct a fourth energy signal comprising energy pulses;

third drop generators electrically coupled to the third fire line and configured to respond to the third energy signal to eject fluid based on the first address signals; and

fourth drop generators electrically coupled to the fourth fire line and configured to respond to the fourth energy signal to eject fluid based on the second address signals.

7. The fluid ejection device of claim 6, wherein the first and third drop generators are disposed on a first half portion, and the second and fourth drop generators are disposed on a second half portion.

8. The fluid ejection device of claim 6, comprising:

a fifth fire line adapted to conduct a fifth energy signal comprising energy pulses;

a sixth fire line adapted to conduct a sixth energy signal comprising energy pulses;

fifth drop generators electrically coupled to the fifth fire line and configured to respond to the fifth energy signal to eject fluid based on the first address signals; and

sixth drop generators electrically coupled to the sixth fire line and configured to respond to the sixth energy signal to eject fluid based on the second address signals, and wherein the first, third and fifth drop generators are disposed on a first half portion and the second, fourth and sixth drop generators are disposed on a second half portion.

9. The fluid ejection device of claim 1, comprising first address lines adapted to conduct the first address signals and second address lines adapted to conduct the second address signals, wherein the first address lines are disposed in one half portion and the second address lines are disposed in a second half portion.

10. The fluid ejection device of claim 1, comprising:

a fluid feed source having a length, wherein each of the first drop generators is fluidically coupled to the fluid feed source; and

address lines adapted to conduct the first address signals, wherein the first drop generators are configured to respond based on the first address signals provided by the first address lines, wherein the first fire line and the address lines are disposed as non-overlapping metal lines along a portion of the length of the fluid feed source.

11. The fluid ejection device of claim 1, comprising a fluid feed source, wherein each of the first drop generators and each of the second drop generators is fluidically coupled to the fluid feed source.

12. The fluid ejection device of claim 1, comprising a fluid feed source, wherein the first drop generators are disposed on opposing sides of the fluid feed source and each of the first drop generators is fluidically coupled to the fluid feed source, and the second drop generators are

disposed on opposing sides of the fluid feed source and each of the second drop generators is fluidically coupled to the fluid feed source.

13. The fluid ejection device of claim 1, comprising a first fluid feed source and a second fluid feed source, wherein each of the first drop generators is fluidically coupled to the first fluid feed source and each of the second drop generators is fluidically coupled to the second fluid feed source.

14. The fluid ejection device of claim 1, comprising a first fluid feed source and a second fluid feed source, wherein the first drop generators are disposed on opposing sides of the first fluid feed source and each of the first drop generators is fluidically coupled to the first fluid feed source and the second drop generators are disposed on opposing sides of the second fluid feed source and each of the second drop generators is fluidically coupled to the second fluid feed source.

15. The fluid ejection device of claim 1, comprising:

a first fluid feed source;

a second fluid feed source;

a third fire line adapted to conduct a third energy signal comprising energy pulses;

a fourth fire line adapted to conduct a fourth energy signal comprising energy pulses;

third drop generators electrically coupled to the third fire line and configured to respond to the third energy signal to eject fluid based on the first address signals; and

fourth drop generators electrically coupled to the fourth fire line and configured to respond to the fourth energy signal to eject fluid based on the second address signals, wherein each of the first and second drop generators is fluidically coupled to the first fluid feed source and each of the third and fourth drop generators is fluidically coupled to the second fluid feed source.

16. The fluid ejection device of claim 15, comprising first address lines adapted to conduct the first address signals and second address lines adapted to conduct the second address signals, wherein the first and third drop generators and the first address lines are disposed on a

first half portion and the second and fourth drop generators and the second address lines are disposed on a second half portion.

17. The fluid ejection device of claim 15, comprising:

a third fluid feed source;

a fifth fire line adapted to conduct a fifth energy signal comprising energy pulses;

a sixth fire line adapted to conduct a sixth energy signal comprising energy pulses;

fifth drop generators electrically coupled to the fifth fire line and configured to respond to the fifth energy signal to eject fluid based on the first address signals; and

sixth drop generators electrically coupled to the sixth fire line and configured to respond to the sixth energy signal to eject fluid based on the second address signals, wherein each of the fifth and sixth drop generators is fluidically coupled to the third fluid feed source.

18. The fluid ejection device of claim 17, comprising first address lines adapted to conduct the first address signals and second address lines adapted to conduct the second address signals, wherein the first, third and fifth drop generators and the first address lines are disposed on a first half portion and the second, fourth and sixth drop generators and the second address lines are disposed on a second half portion.

19. The fluid ejection device of claim 1, comprising:

data lines adapted to conduct data signals representing an image, wherein the first drop generators are configured to respond to the first energy signal to eject fluid based on the data signals and the second drop generators are configured to respond to the second energy signal to eject fluid based on the data signals.

20. The fluid ejection device of claim 19, wherein the first drop generators are divided into data line groups of drop generators, wherein the first drop generators in each of the data line groups of drop generators are configured to respond to the first energy signal based on the data signals received on one of the data lines.

21. A fluid ejection device, comprising:

a first fire line adapted to conduct a first energy signal comprising energy pulses;

a second fire line adapted to conduct a second energy signal comprising energy pulses;

means for generating first address signals;

means for generating second address signals;

means for responding to the first energy signal to eject fluid based on the first address signals; and

means for responding to the second energy signal to eject fluid based on the second address signals.

22. The fluid ejection device of claim 21, wherein the first address signals are valid while the second address signals are invalid and the second address signals are valid while the first address signals are invalid.

23. The fluid ejection device of claim 21, wherein the means for generating first address signals is disposed on a first half of the fluid ejection device and the means for generating second address signals is disposed on a second half of the fluid ejection device.

24. The fluid ejection device of claim 21, wherein the means for generating first address signals is disposed in one corner of the fluid ejection device and the means for generating second address signals is disposed in another corner of the fluid ejection device.

25. The fluid ejection device of claim 21, comprising means for supplying the first address signals to the means for responding to the first energy signal and means for supplying the second address signals to the means for responding to the second energy signal, wherein the means for supplying the first address signals is disposed in a first half portion of the fluid ejection device and the means for supplying the second address signals is disposed in a second half portion of the fluid ejection device.

26. A method of operating a fluid ejection device comprising:

generating first address signals in the fluid ejection device;

generating second address signals in the fluid ejection device;

receiving a first energy signal comprising energy pulses on a first fire line;

receiving a second energy signal comprising energy pulses on a second fire line;

responding to the first energy signal to eject fluid based on the first address signals; and

responding to the second energy signal to eject fluid based on the second address signals.

27. The method of claim 26, comprising:

receiving the first energy signal at each of first drop generators;

receiving the second energy signal at each of second drop generators;

activating the first drop generators based on the first address signals; and

activating the second drop generators based on the second address signals.

28. The method of claim 26, comprising:

supplying valid first address signals while the second address signals are invalid; and

supplying valid second address signals while the first address signals are invalid.

29. The method of claim 26, comprising:

receiving a third energy signal comprising energy pulses on a third fire line;

receiving a fourth energy signal comprising energy pulses on a fourth fire line;

responding to the third energy signal to eject fluid based on the first address signals; and

responding to the fourth energy signal to eject fluid based on the second address signals.

30. The method of claim 29, comprising:

receiving a fifth energy signal comprising energy pulses on a fifth fire line;

receiving a sixth energy signal comprising energy pulses on a sixth fire line;

responding to the fifth energy signal to eject fluid based on the first address signals; and

responding to the sixth energy signal to eject fluid based on the second address signals.

31. The method of claim 26, comprising:

receiving data signals representing an image on data lines;

responding to the first energy signal to eject fluid based on the data signals; and

responding to the second energy signal to eject fluid based on the data signals.

32. The method of claim 31, wherein the first and second drop generators are divided into data line groups of drop generators, the method comprising activating the first and second drop generators in each of the data line groups of drop generators based on the data signals on a corresponding data line.

33. The method of claim 26, comprising distributing the first energy signal to the drop generators with an energy variation of less than 20% between any two of the first drop generators.

34. The method of claim 26, comprising distributing the first energy signal to the drop generators with an energy variation of up to 10% to 15% between any two of the first drop generators.

35. A fluid ejection device comprising:

a first fire line to conduct a first energy signal comprising energy pulses;

a first source of address signals configured to provide first address signals;

first resistors electrically coupled to the first fire line and configured to respond to the first energy signal to cause fluid to be ejected fluid based on the first address signals, wherein the first source of address signals and the first resistors are positioned on a first portion of the fluid ejection device; and

a second source of address signals configured to provide second address signals, where the second source of address signals is positioned on a second portion of the fluid ejection device to supply address signals to resistors on the second portion of the fluid ejection device.

36. The fluid ejection device of claim 35, comprising:

a second fire line adapted to conduct a second energy signal comprising energy pulses; and

second resistors electrically coupled to the second fire line and configured to respond to the second pulses to cause fluid to be ejected based on the first address signals, wherein the

first source of address signals and the second resistors are positioned on the first portion of the fluid ejection device.

37. (Cancelled)

38. The fluid ejection device of claim 35, comprising:

a second fire line adapted to conduct a second energy signal comprising energy pulses; and

second resistors electrically coupled to the second fire line and configured to respond to the second pulses to eject fluid based on the second address signals, wherein the second source of address signals and the second resistors are positioned on the second portion of the fluid ejection device.

39. A fluid ejection device comprising:

a first source of first address signals;

a second source of second address signals;

first address lines configured to conduct the first address signals;

second address lines configured to conduct the second address signals;

first resistors electrically coupled to the first address lines, the first resistors configured to cause fluid to be ejected based on the first address signals; and

second resistors electrically coupled to the second address lines, the first resistors configured to cause fluid to be ejected based on the first address signals; and

wherein the first address generator and the first resistors are located on first portion of the fluid ejection device and the second address generator and the second resistors are located on a second portion of the fluid ejection device.

40. The fluid ejection device of claim 39, wherein the first address lines are disposed in only the first portion and the second address lines are disposed in only the second portion.

41. The fluid ejection device of claim 39, wherein the first address lines and the first fire line are disposed in only the first portion and the second address lines and the second fire line are disposed in only the second portion.

42. The fluid ejection device of claim 39, comprising:

a fluid feed source having a length, wherein the first fire line and the first address lines are disposed as non-overlapping metal lines along a portion of the length of the fluid feed source.

43. A method for operating a fluid ejection device that comprises a first group of resistors that each cause fluid to be ejected from a corresponding opening and a second group of resistors that cause fluid to be ejected from a corresponding opening, the first group of resistors being disposed on a first portion of the fluid ejection device and the second resistors being disposed on a second portion of the fluid ejection device, the method comprising:

generating first address signals at a first source;

generating second address signals at a second source different than the first source;

providing the first address signals to the first group of resistors; and

providing the second address signals to the second group of resistors.

44. The method of claim 43, further comprising providing first energy pulses on a first line that is coupled to the first group of resistors and providing second energy pulses on a second line coupled to the second group of resistors.

45. The method of claim 44, wherein providing the first energy pulses comprises distributing the first energy pulses to the first group of resistors with an energy variation of less than 20% between an energy provided to any two resistors of the first group.

46. The method of claim 44, wherein providing the first energy pulses comprises to distributing the first energy pulses to the first group of

resistors of up to 10% to 15% variation between an energy provided to any two resistors of the first group.

47. The method of claim 43, further comprising providing a synchronization signal to both the first and second source of address signals.

48. – 54. (Canceled)

9. Evidence Appendix

None. There is no extrinsic evidence.

10. Related Proceedings Appendix

None. There are no related proceedings.